

1. A process for forming a synthetic wood material, comprising:

(a) providing a plurality of continuous glass fibers oriented substantially in the longitudinal axis;

5 (b) contacting said fibers with a resorcinol modified phenolic resin binder;

(c) pultruding said fibers and binder into a synthetic wood article; and

(d) oxidative treating said synthetic wood article.

10 2. A process as set forth in Claim 1 further comprising precoating said fibers and binder with a precoating resin prior to said pultruding step.

3. A process as set forth in Claim 1 further comprising curing the resorcinol modified phenolic resin binder after said pultruding step.

15 4. A process as set forth in Claim 1 wherein said curing the resorcinol modified phenolic resin binder step is autocatalyzed.

5. A process as set forth in Claim 2 wherein said precoating resin comprises furfuryl alcohol resin.

6. A process as set forth in Claim 3 wherein said curing comprises curing at a temperature of about 25°C to 150°C for about 0.1 to 24 hours.

7. A process as set forth in Claim 6 wherein said pultruding comprises pultruding to produce a pultruded article produced at a pH greater than 10.

8. A process as set forth in Claim 1 wherein said glass fibers are composed of E glass.

9. A process as set forth in Claim 1 wherein said E glass fibers can be co-mixed with carbon, aramid, or ceramic fibers, or mixtures thereof.

10. A process as set forth in Claim 8 wherein said glass fibers are sized in the range of about  $80-100 \times 10^{-5}$  inches in diameter.

11. A process as set forth in Claim 1 wherein said wherein said pultruding comprises pultruding to produce a pultruded article which is substantially porosity free.

12. A process as set forth in Claim 8 wherein said fibers are formed in bundles containing a number of glass fibers in the range of 100 to 5000.

13. A process as set forth in Claim 1 wherein said pultruding comprises pultruding to produce a pultruded article which is substantially free of the defects of knots, warps, or pores.

14. A synthetic wood material comprising:

(a) a plurality of continuous glass fibers oriented substantially in the longitudinal axis; and

(b) a resorcinol modified phenolic resin binding said fibers to form a synthetic wood material, wherein said synthetic wood article has been oxidative treated to restore color.

15. A synthetic wood material as set forth in Claim 14 wherein said synthetic wood material is in the form of a pultruded cylinder, log, rectangle, or square cut into lengths of about 0.125 inches to 12 inches.

16. A synthetic wood material as set forth in Claim 15 wherein said synthetic wood article has been oxidative treated by flame treatment to restore color.

17. A synthetic wood material as set forth in Claim 14 wherein said fibers are E glass fibers co-mixed with carbon, aramid, or ceramic fibers or mixtures thereof.

18. A synthetic wood material as set forth in Claim 14 wherein said fibers are formed into bundles.

19. A synthetic wood material as set forth in Claim 14 wherein said fibers are sized in the range of about  $80-100 \times 10^{-5}$  inches in diameter.

20. A process for forming a synthetic wood material, comprising:

(a) providing a plurality of continuous glass fibers sized in the range of about  $80-100 \times 10^{-5}$  inches in diameter and oriented substantially in the longitudinal axis;

(b) contacting said fibers with a resorcinol modified phenolic resin binder substantially free from catalyst;

(c) precoating said fibers and binder with a furfuryl alcohol resin;

(d) passing the precoated fibers through a steel pultrusion die;

(e) curing said resorcinol modified phenolic resin binder substantially free from catalyst to form a synthetic wood mate-

rial, wherein said synthetic wood material is substantially free of the defects of knots, warps, or pores;

(f) cutting said synthetic wood material in the shape of a wood board, plank, or strip; and

(g) oxidative treating said synthetic wood material by

5 flame treatment to restore color.

2025 RELEASE UNDER E.O. 14176